2005 *Preliminary* RSW Data for Ice Harbor Dam

Yearling Chinook and Steelhead Radiotelemetry Studies

Performed by: NOAA – NWFSC
For the USACE
Anadromous Fish Evaluation Program

Important Considerations

- This information is very preliminary and the specific numbers are likely to change
- This is the first look at RSW passage at Ice Harbor
- These survival estimates are relative survival estimates compared to a tailrace reference

Legend

Passage Metrics

Survival Metrics

% of fish passing a dam via a specific route

% of fish surviving a dam or specific dam passage route

Passage Route

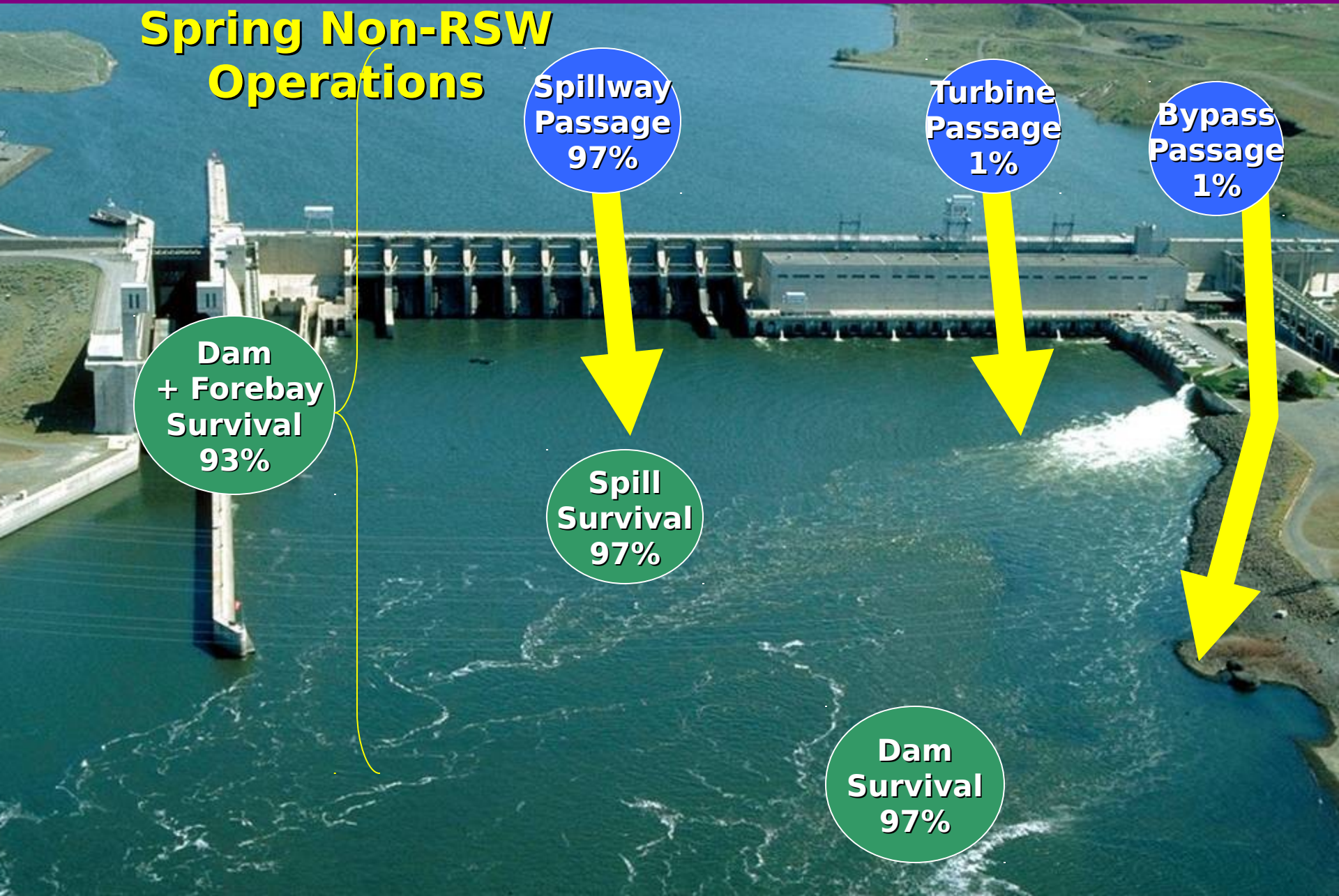
% of Fish Passing a dam via an RSW

% of fish surviving RSW passage route

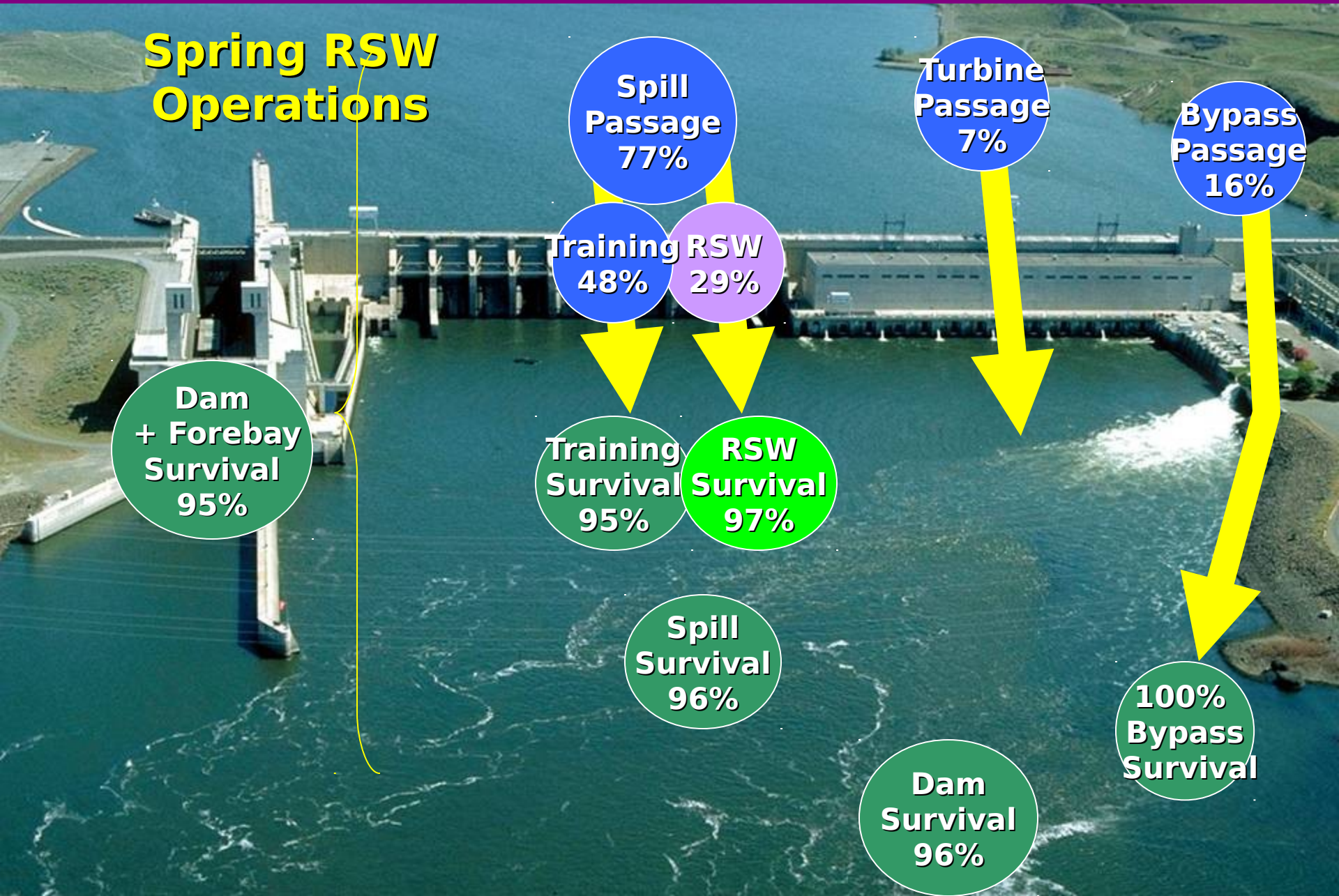
Ice Harbor 2005 Yearling Chinook Research Background Information

- Study
  - Radio Telemetry and PIT – Paired Release
  - Approximately 4800 fish released
  - May 3 – May 29
- Operations
  - RSW on Total Avg Q = 96kcfs
  - RSW on Spill Avg Q = 33kcfs (34%)
  - RSW off Total Avg Q = 105kcfs
  - RSW off Spill Avg Q = 86kcfs (82%)

Ice Harbor Dam – Yearling Chinook



Ice Harbor Dam – Yearling Chinook



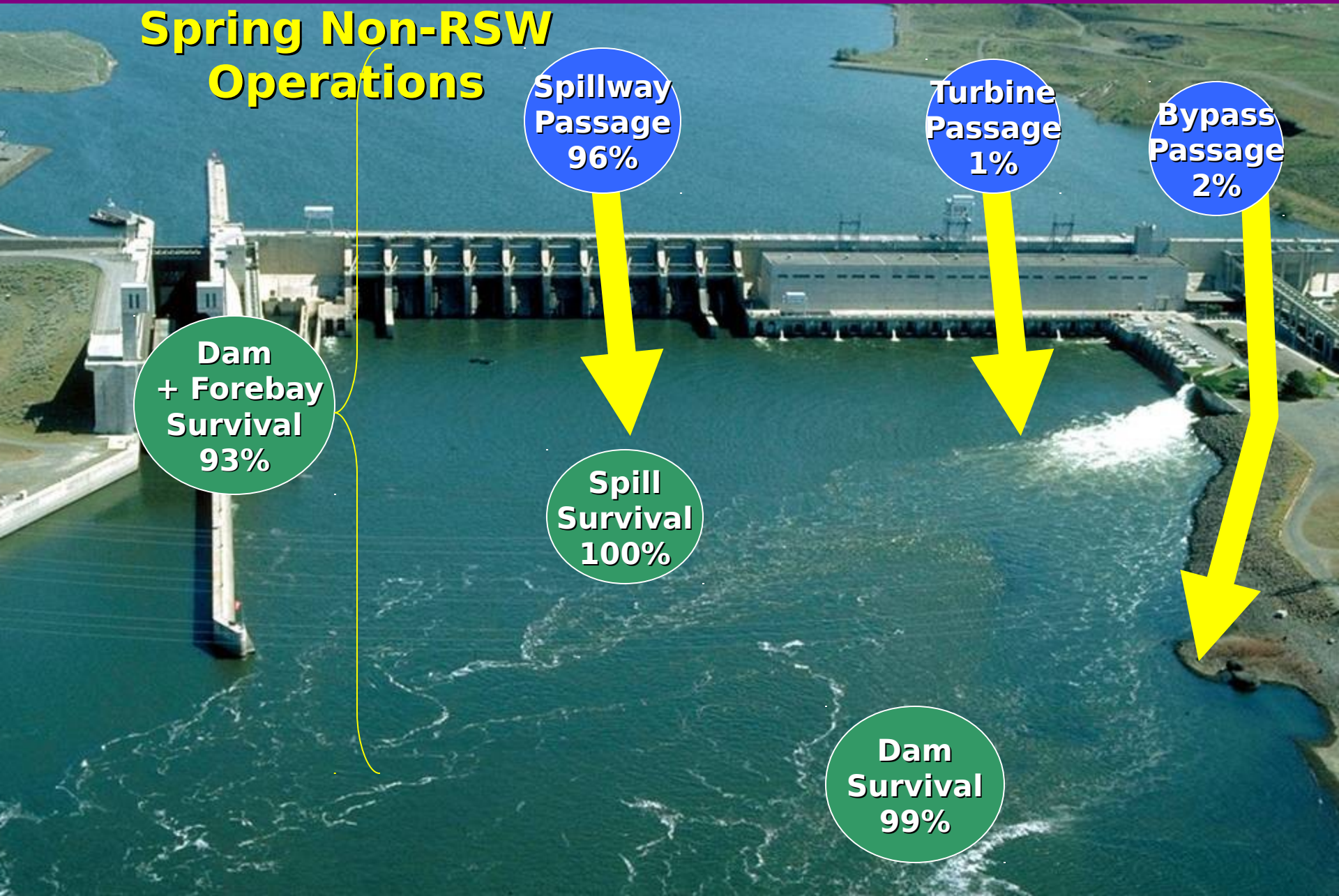
Key Takeaways from ICH Yearling Chinook R/T Studies

- More fish went through turbines and bypass during RSW operations versus Non RSW
- More fish appeared to go through training spill than through the RSW. This may be due to spill volume or spill pattern.
- Project Survival was not likely statistically different between RSW (95%) and Non RSW (93%) Operations (34% vs 82% spill)
- Concrete Survival was not likely statistically different between RSW (96%) and Non RSW (97%) Operations (34% vs 82% spill)
- There may be room for improvement with RSW operations if we look closely at training spill and forebay delay

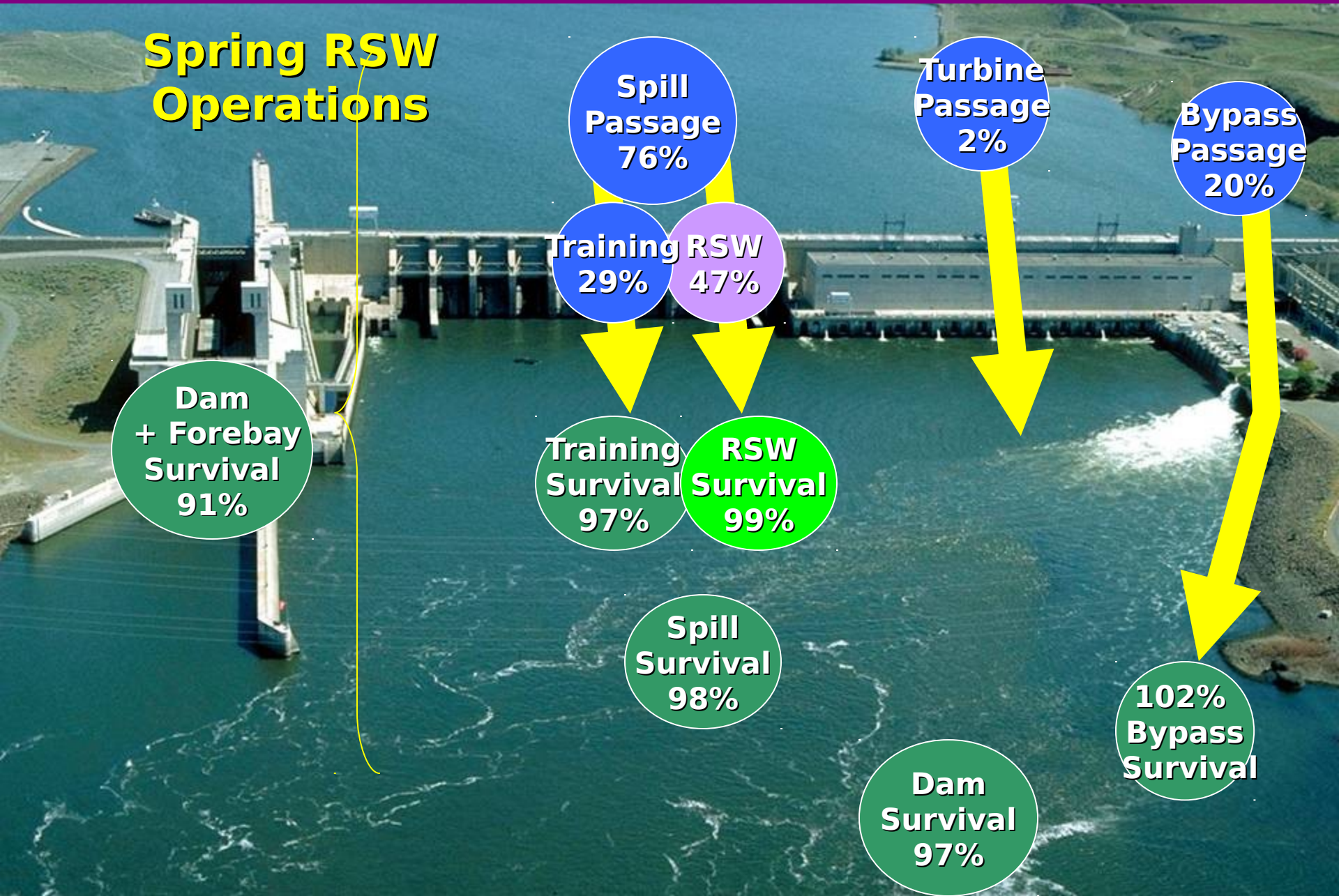
Ice Harbor Steelhead Research Background Information

- Study
  - Radio Telemetry and PIT – Paired Release
  - Approximately 3200 fish released
  - May 3 – May 29
- Operations
  - RSW on Total Avg Q = 96kcfs
  - RSW on Spill Avg Q = 33kcfs (34%)
  - RSW off Total Avg Q = 105kcfs
  - RSW off Spill Avg Q = 86kcfs (82%)

Ice Harbor Dam – Steelhead



Ice Harbor Dam – Steelhead



Key Takeaways from ICH Steelhead R/T Studies

- More fish went through the bypass during RSW operations versus Non RSW
- Project Survival was not likely statistically different between RSW (91%) and Non RSW (93%) Operations (34% vs 82% spill)
- Concrete Survival was not likely statistically different between RSW (97%) and Non RSW (99%) Operations (34% vs 82% spill)
- There may be room for improvement with RSW operations if we look closely at training spill

2005 Preliminary Relative Survival and Passage Estimates for Yearling Chinook

		RSW Operations		Non-RSW Operations	
		Survival %	CI	Survival %	CI
Ice Harbor	Dam+Fore	94.5	92.5-96.5	92.8	90.7-95.0
	Dam	98	94.2-98.1	96.8	94.9-98.8
	Spillway	95.8	93.7-97.9	97.1	95.2-99.0
	RSW	97.0	94.2-99.9		
	Training	95.1	92.6-97.6		
	JBS	99.7	96.8-102.7		
Ice Harbor		Passage %	CI	Passage %	CI
	Spill	77		97	
	Turbine	7		1	
	Bypass	16		1	
	RSW	29		-	
	FGE	70.0		72.2	
	FPE	92.3		98.4	
	RSW Effect.	3.15		-	

2005 Preliminary Relative Survival and Passage Estimates for Steelhead

		RSW Operations		Non-RSW Operations	
		Survival %	CI	Survival %	CI
Ice Harbor	Dam+Fore	90.8	87.7-93.9	93.2	90.0-96.4
	Dam	97.3	94.6-100.1	99.3	96.5-102.1
	Spillway	98.0	95.1-101.0	100	97.2-102.7
	RSW	98.5	95.0-102.0		
	Training	97.3	92.9-101.6		
	JBS	101.5	97.6-105.5		
Ice Harbor		Passage %	CI	Passage %	CI
	Spill	76		96	
	Turbine	2		1	
	Bypass	20		2	
	RSW	29		-	
	FGE	89.9		73.7	
	FPE	96.6		98.2	
	RSW Effect.	5.09		-	